

No. 12885.

IN THE

# United States Court of Appeals

FOR THE NINTH CIRCUIT

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CONSOLIDATED VULTEE AIRCRAFT CORPORATION and  
AMERICAN AIRLINES, INC.,

*Appellants,*

*vs.*

MAURICE A. GARBELL, INC., and GARBELL RESEARCH  
FOUNDATION,

*Appellees.*

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BRIEF OF MAURICE A. GARBELL, INC., AND  
GARBELL RESEARCH FOUNDATION.

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## BRIEF OF MAURICE A. GARBELL, INC., AND GARBELL RESEARCH FOUNDATION.

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Appellants, Consolidated Vultee Aircraft Corporation and American Airlines, Inc., have appealed from the judgment of the District Court adjudging valid and infringed claims 1, 2, 3, 5, 6 and 12 of the Maurice A. Garbell patent No. 2,441,758.

The structure found to infringe these claims is the convair Liner, Consolidated Vultee Model 240 aircraft, manufactured and sold by appellant, Consolidated Vultee Aircraft Corporation, and used by appellant, American Airlines, Inc.

## Jurisdiction.

The District Court has jurisdiction under the Patent Laws (Judicial Code 24, 28 U. S. C. A. 41(7)). This Court has jurisdiction of this appeal (Judicial Code 129, 28 U. S. C. A. 227). The appeal was timely.

## Statement of the Case.

The Garbell patent relates to an invention of a fluid-foil lifting surface which, for the purposes of the trial and on this appeal, more specifically can be called an aircraft wing or lifting surface. The invention is described by Dr. Garbell in the patent in suit [p. 1, colm. 1, line 53, to p. 1, colm. 2, line 3, R. 605-616]:

“The general object of this invention is the attainment of good stalling characteristics of lifting surfaces, said good stalling characteristics being achieved by the employment of three or more controlled fluid-foil sections, 1, 2, and 3, selected according to the method explained in the subject specification of this invention, \* \* \*.”

In an airplane wing certain cross-sectional geometric shapes, called airfoils, are used to produce lift by that wing [R. 166-168]. The lift is primarily produced by accelerating the flow of air over the upper surface of the wing in relation to the average speed of the wing through the surrounding air. As long as this flow of air over the upper surface of the wing is smooth and not turbulent, lift will be produced by that wing. If the speed of the aircraft is decreased below a minimum speed by heading the aircraft upwardly and shutting down the power, the air flow over the upper surface becomes turbulent with the result that the speed of the passage of the air over the



top side of the wing drops, causing a loss of lift, commonly referred to as a “stall” [R. 169-172].

It was uncontrovertedly shown to the District Court that there were three types of stalls known to the aircraft business prior to the invention of Dr. Garbell. These three types of stalls are fully described by the uncontroverted testimony of Dr. Garbell and are:

1. TIP STALL:

A tip stall in which the flow of air over the upper surface of a wing first becomes turbulent at the outer end or tip of the wing, which turbulent flow destroys the effectiveness of the control surfaces (ailerons) which are located there [R. 539]. In this type of stall the aircraft is substantially uncontrollable at the first inception of the stall and will roll over and fall. There is no stall warning, and the aircraft continues to nose up toward a complete loss of lift and control [R. 171-176, Exhibit 4].

2. DEEP MID-SEMISPAN STALL:

A deep mid-semispan<sup>1</sup> stall in which the flow of air over the upper surface of the wing first becomes turbulent near mid-semispan, that is, substantially half way between the root<sup>2</sup> and the tip of either wing, and the stall deepens and develops fore-and-aft across the wing without a material spread of the turbulence to-

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<sup>1</sup>Semispan—a wing is ordinarily spoken of as comprising the entire lifting element from one tip to the other and the term “semispan” refers to half of the wing or from the fuselage to the wing tip.

<sup>2</sup>The term “root” means the center of the whole wing, and more commonly, that portion adjacent the fuselage.

ward the root of the wing. In this type the stall warning is inadequate, and the aircraft continues to nose up until the stall is complete and the aircraft becomes wholly uncontrollable [R. 176-178, Exhibit 5].

### 3. ROOT STALL:

A root stall in which the flow of air over the upper surface of a wing first becomes turbulent over a narrow area adjacent the fuselage and then spreads fore-and-aft across the wing. In this type of stall an extremely rough air flow hits the tail, setting up a tail shake and great structural stresses while the aircraft is flying at a speed substantially higher than that at which loss of lift occurs. As this stall becomes more intense the rough air flow increases until the pilot loses control of the tail surfaces or the tail surfaces are destroyed [R. 178-182, Exhibit 6].

All of these prior types of stalls create undesirable stall characteristics. If one of these prior types of stalls occurred in an aircraft, the aircraft would become uncontrollable unless the pilot took corrective measures immediately upon the first inception of the stall. It was the object of Dr. Garbell's invention of the patent in suit to construct a wing with more desirable stalling characteristics. He accomplished this by the construction of a wing which did not have any of the prior types of stalls, but one which gave an aircraft a stall that left the aircraft substantially controllable throughout the stall and would give the pilot a good stall warning before the stall became critical [R. 182-185].

The District Court Held That a Wing Constructed in Accordance With the Teaching of the Garbell Patent Solved a Problem Long Existing in the Aircraft Industry.

The problem which Dr. Garbell solved was to provide a wing which would have neither a tip stall nor a root stall nor a deep mid-semispan stall, but a stall which would give a timely warning to the pilot so that he could take corrective measures to get the aircraft out of the stall, and if he ignored this warning, the aircraft would resist increasingly any further action by the pilot that might aggravate the stall, or the pilot would still be able to get successfully out of the stall if the stall had progressed further toward a complete loss of lift [Garbell Patent, p. 3, colm. 5, lines 51-65, R. 183-184].

The record is full of descriptions of the dangers of a tip stall [R. 169-176, 539, 867, 905-906]. The record is full of the many attempts to prevent a tip stall [R. 176-182, 510, 578, 868, 905-906]. The record shows that there were two schools of thought on how to prevent a tip stall [R. 176-182]. As described in the unchallenged testimony of Dr. Garbell, these schools constituted (1) the root stall which had many dangers and (2) the deep mid-semispan stall which was the less dangerous of the remedies, but had many deficiencies, such as loss of efficiency (load carrying ability) and a lack of warning to the pilot that the aircraft was in a dangerous condition and longitudinally unstable [R. 176-182].

There were also palliative means of preventing tip stall widely used by many aerodynamicists. These were the use of "spoilers" which were employed to disturb the air flow and cause turbulence over the portion of the wing just before tip stall commences [R. 182, 574, 576-579, 590].

Spoilers did not overcome the dangers of tip stalls but they provided the pilot with warnings that the aircraft was entering into a dangerous condition and that he should immediately remedy the same. Spoilers had the effect of seriously decreasing the speed and load carrying capacity of the aircraft. They were merely remedies used to make an otherwise dangerous aircraft usable [R, 578, 590].

All of these schools of thought on how to overcome tip stall were discarded by Dr. Garbell and an entirely new approach to the problem was evolved by him as described and set forth in the patent in suit along with the mechanical construction of a wing which solved the problem.

### The Garbell Stall.

The record shows and there is no evidence to the contrary that a wing constructed in accordance with the patent in suit has a totally new type of stall, which we shall hereinafter call the "Garbell Stall."

The Garbell Stall is one in which the flow of air over the upper surface of the wing first becomes turbulent over a large spanwise area of the lifting surface inboard of the lateral control devices and such turbulence spreads inboardward therefrom characterized by a timely but not excessive stall warning through tail shake at a speed sufficiently but not excessively above the minimum level flying speed, together with a substantial decrease in elevator control effectiveness as the aircraft approaches the stall, a restoring pitching motion, nose down, with the absence of any excessive rolling motion prior to such restoring pitching motion, and followed by the restoration of *airspeed* necessary for sustained flight with only a small

loss in altitude [Garbell patent, p. 3, colm. 5, lines 7-12 and lines 36-65; R. 182-185, 197-199; Exhibit 7, and Find. of Fact XII, R. 47].

### The Structure Patented by Garbell to Achieve the Garbell Stall.

The patent in suit specifically describes that in order to achieve the Garbell Stall the semispan of a wing should have three or more control sections<sup>3</sup> and these three control sections must have a definite relationship to one another. This relationship is:

1. The root control section must have the least mean-line camber<sup>4</sup> and the greatest thickness ratio<sup>5</sup> of the *entire* wing;
2. The tip control section must have the greatest mean-line camber and the smallest thickness ratio of the *entire* wing; and

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<sup>3</sup>A control section is the cross-sectional shape of a wing obtained by the intersection of the wing with a vertical fore-and-aft plane located at a particular spanwise location between the root and the tip of a wing. From a given set of control sections other airfoil sections are derived by means of drawing straight lines between points on the one control section to corresponding points on a control section located at another spanwise point of the wing. Sections lying between two control sections are then referred to as faired sections obtained by straight-line fairing.

<sup>4</sup>*Mean-Line Camber*: In an airfoil section there is a mean line half way between the top curve and the bottom curve of the airfoil. Mean-line camber is the amount of curvature of the mean line [R. 167-168] and the greater the mean-line camber the more lift the particular section will have at a given angle of attack. For all practical considerations as far as this case is concerned, mean-line camber of camber is synonymous with the arch of the wing or airfoil section. Hereinafter in this Brief, for brevity Appellees will use the term "Camber" meaning "Mean-Line Camber."

<sup>5</sup>*Thickness Ratio*: is the maximum thickness of an airfoil section divided by its chord length. Chord length is the fore-and-aft length of an airfoil section.

3. There must be at least one interjacent control section between the root and the tip and this section must have a greater mean-line camber than the root section and a smaller mean-line camber than the tip section, and the mean-line camber of the interjacent control section should be greater than that which would be derived from straight-line fairing from the root section to the tip section, and the thickness ratio of the interjacent control section should be smaller than that of the root section and greater than that of the tip section, but smaller than would be derived from straight-line fairing from root section to tip section [Garbell patent, p. 2, colm. 4, lines 31-67; R. 198-199, 205-206].

#### **Defenses Urged by Appellants at the Trial.**

The defenses set up in the trial of this cause were:

1. Anticipation of the patent in suit.
2. Lack of invention of the patent in suit.
3. Defendants did not infringe the patent in suit.
4. Defendants had an express or an implied license under the patent in suit.

The District Court held that the Garbell patent described a new and novel invention [R. 38, Find. of Fact XIV, XVI; R. 48; Concl. of Law II, R. 56], that none of the prior art anticipated that invention [R. 38, Find. of Fact XV, XVIII, XIX, XX, XXI, R. 48-50; Concl. of Law II, R. 56], and that the Convair Liner, Consolidated Vultee Aircraft Corporation Model 240 aircraft, infringed claims 1, 2, 3, 5, 6 and 12 of the patent in suit [R. 38-39, Find. of Fact XXV, XXVI, R. 51; Concl. of Law III, IV, R. 56-57].

The District Court also held that there was no license to the defendants, either express or implied [R. 39-43; Find. of Fact XXXIII, XXXIV, R. 53].

Dr. Garbell's invention comprised the use of more camber at the tip than at the root and more camber at the interjacent sections than at the root but less than at the tip, with the camber at the interjacent section being greater than obtainable by straight-line fairing from root to tip, and having less thickness ratio at the tip than at the root and a greater thickness ratio at an interjacent point than at the tip but less than at the root and with a smaller thickness ratio than would be obtainable by straight-line fairing from root to tip.

Appellants have relied on published reports or alleged prior users. All of this prior art fails to describe or use the camber and thickness ratios described as necessary in the patent in suit [R. 430, 431-435, 438-440, 442, 239-242, 284].

The problem of tip stall is most serious in wings having a high planform taper [Exhibit XXX, p. 517; R. 867], *i. e.*, a substantially longer root chord than tip chord, more than two and one-half ( $2\frac{1}{2}$ ) to one (1) [R. 226]. By using a highly tapered wing the structural weight of the wing can be greatly reduced, thereby increasing the load carrying capacity of the aircraft having the same power [R. 225, 227]; however, the more taper in a wing the more serious the tip stall problem. In fact, prior to the invention of the patent in suit a highly tapered wing, that is, one that is more than two and one-half ( $2\frac{1}{2}$ ) to one (1) could not be used safely because of the tip stall problem.

Most of the prior art relied upon by defendant described low tapered wings where the problem of tip stall

was readily overcome by increasing the camber from root to tip and using "wash out,"<sup>6</sup> twisting the wing. The patent in suit is expressly directed at highly tapered wings [Garbell Patent, p. 2, colm. 3, lines 14-19, 66 to colm. 2, line 4].

In creating the Garbell stall, the Garbell patent does not merely increase the camber from root to tip, which is known as a two-section wing, but uses a particular conformation of three-section wing, which is not taught or described in any of this prior art and this Garbell wing achieves a stall function which is not possible with a mere increase of the camber from root to tip, with or without "washout" [R. 442].

There is no contrary evidence in the record to the testimony of Dr. Garbell that all of this prior art, both the published reports and alleged prior users, describes wings which have either a tip stall, deep mid-semispan stall or a root stall, or were not usable in high speed aircraft [R. 426, 442]. In fact, some of these articles actually confirm the testimony of Dr. Garbell in that they describe the dangers of the tip stall in highly tapered wings and attempt to outline a remedy therefor [R. 905-907], but they do not describe in any way the Garbell Stall nor do they have the structure which would have produced the Garbell Stall [R.

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<sup>6</sup>*Wash-Out*: is a way of twisting a wing so that the tip portion of that wing has a lower angle of attack than the root portion of the wing. Wash-out reduces the lifting force acting upon the tip, but it increases the drag or air resistance of the total wing. Wash-out is merely another expedient to make an otherwise dangerous aircraft usable [R. 901, colm. 2, 906].



442]. They disclose the problem but do not offer a successful remedy. It is fundamental that a successful invention is not to be defeated by earlier failures.

*Carnes Artificial Limb Co. v. Dilworth Arm Co.*,  
273 Fed. 838 at 841;

*Crown Cork & Seal Co. v. Ideal Stopper Co., et al.*,  
123 Fed. 666 at 668;

*Kirchberger, et al. v. American Acetylene Burner Co.*, 124 Fed. 764 at 776, 777;

*Walker on Patents*, Deller's Ed., Vol. 1, §48, p. 257;

*Morey v. Lockwood*, 8 Wall. 230.

#### **Defendants Abandoned the Defense of Noninfringement.**

Defendants abandoned the defense of noninfringement at the trial of this cause. Dr. Garbell testified to the structure contained in the Convair 240 airliner. He then set forth that he had studied and was thoroughly familiar with the flight test reports of the Convair Liner [compiled by Defendant Consolidated Vultee Aircraft, Exhibit 35] and that the Convair Liner had a Garbell Stall. The Convair 240 airliner has a highly tapered wing, 3:1 [R. 1005]. It has the smallest camber at the root and the greatest at the tip. It has an interjacent section which has a greater camber than that at the root and a smaller camber than that at the tip and the camber at the interjacent section is greater than would be obtained by straight-line fairing. It has the greatest thickness ratio at the root and the smallest thickness ratio at the tip. It has an interjacent section which has a smaller thickness ratio than at the root and a greater thickness ratio than at the tip and a smaller thickness ratio at the interjacent section than would be obtained by straight-line fairing [R. 220-225, 653].

In fact, even counsel for defendants have admitted the infringement of the patent in suit [Exhibit 21, R. 653], wherein defendants state "Claims 1, 2, 3, 5, 6 and 12 appear to be utilized by the Model 240 wing" [R. 227-228]. No testimony was placed in the record by the defendants contrary to any of these statements by Dr. Garbell and the Findings of Fact of the Court are therefore definitely established.

#### **Facts Relating to Defendants' Alleged Claim of License.**

The facts relating to defendants' claim of license are not in dispute as there was no contrary evidence offered at any time during the trial to the testimony of Dr. Garbell. These facts are:

In 1937 Dr. Garbell, while at the Milan Institute of Technology in Italy, was in charge of the Soaring Research Institute and was requested to prepare a uniform specification for sailplanes for the Olympic games [R. 160-162]. At that time he realized the deficiencies of all the prior attempts to overcome tip stalls and proceeded to work out a theory of how to overcome this tip stall problem in a sailplane [R. 165-166]. He actually constructed a sailplane known as the Pinguino, which had a stall fundamentally similar in result to the herein described Garbell Stall. The means used in the Pinguino of accomplishing this result were not usable in a powered or high speed aircraft [R. 239-242, 284]. In 1939 Dr. Garbell came to the United States as a resident alien and sought employment in the aircraft industry [R. 163]. While he was en route by steamship to the United States he calculated and worked out a novel construction of a wing for powered aircraft, which novel construction is fully described in the patent in suit. At that time he made drawings,

sketches and calculations which are substantially the same as those later incorporated in the application for the patent in suit [R. 165, 172-190, 199]. These drawings, sketches and calculations were later destroyed as Dr. Garbell did not need them to remember the invention and its construction [R. 183]. As he was a resident alien, employment in the aircraft industry in the United States at the time of his arrival was practically barred, but he did secure employment in aeronautical teaching. During this time (Summer of 1939) he met Dr. Robert C. Platt, who was a leading aerodynamicist for the National Advisory Committee for Aeronautics, at Elmira, New York, where he described and explained the invention set forth in the Garbell patent to Dr. Platt, including all essential elements of the patent in suit, so that Dr. Platt fully understood both the principle of operation and the structure invented by Dr. Garbell. This conversation of Dr. Garbell with Dr. Platt was followed by correspondence between Dr. Garbell and Dr. Platt's superior, Dr. Lewis of N. A. C. A. [R. 199-202]. Dr. Garbell subsequently, in 1939, was employed by the Boeing School of Aeronautics in Oakland, California, where he met and became acquainted with one Harry Bradford Chin, who was teaching Aircraft Design. While so employed Dr. Garbell thoroughly described his invention to Harry Bradford Chin, made drawings and sketches on paper and on a blackboard to explain the invention to Mr. Chin and Mr. Chin fully understood both the principle of operation and the structure invented by Dr. Garbell [R. 202-207].

This Court is bound by a well established rule of law to accept the Findings of Fact of the District Court where there is substantial evidence to support those facts. In the present case the District Court found as a matter of

fact that Dr. Garbell made his invention and disclosed it to others before his employment by the defendant, Consolidated Vultee Aircraft Corporation [Find. of Fact XXXV, XXXVI, R. 53]. There is no evidence in the record in any way challenging the testimony of Dr. Garbell on this subject. Under the rule of evidence, by which this Court and the District Court are bound, these facts are established. The rule of evidence that applies to this case is that of the State of California and is Section 1844, Code of Civil Procedure:

“§1844. One witness sufficient to prove a fact. The direct evidence of one witness who is entitled to full credit is sufficient for proof of any fact, except perjury and treason.”

In 1942 Dr. Garbell, having become a citizen of the United States, applied for and secured employment with the defendant, Consolidated Vultee Aircraft Corporation, as an Aeronautical Engineer [R. 211]. Within six weeks thereafter Dr. Garbell attempted to interest the defendant, Consolidated Vultee Aircraft Corporation, in his invention [R. 446]. He actually pestered the officials of the corporation to use his invention. These officials at all times rejected the use of the invention [R. 234-237, 261, 278-279, 301-302, 313-314, 324-326, 362, 461, 666, 40-43; Find. of Fact XXXVI, XXXVII, XLIII; R. 53-55].

The officials and superiors of Dr. Garbell at Consolidated Vultee Aircraft Corporation referred to his invention in derogatory terms [R. 236, 301-302, 311; Find. of Fact XIII; R. 48]. At no time did the corporation offer to use the invention and at no time did the corporation use the invention until long after Dr. Garbell had left its em-

ployment [R. 236-237, 249, 255-257, 326, 418, 457-459; Find. of Fact XL, XLV; R. 54, 55].

A very graphic illustration of the continued rejection of the Garbell invention is presented by Exhibit 25 (see original exhibit) whereon an officer or agent of Consolidated Vultee Aircraft Corporation wrote in longhand "Not at this time." This rejection was made more than two years after Dr. Garbell first tried to interest the defendant in his invention. Even then the defendant made no claim of title or of license; in fact, defendant never made such a claim [Find. of Fact XLII, R. 54] until almost a year after Dr. Garbell had left the employment of defendant and had initiated correspondence with defendant regarding a possible settlement for the infringement of his rights [R. 461].

The aircraft held to infringe the patent in suit was designed and manufactured after Dr. Garbell left the defendant's employment [R. 325, 418, 458-459; Find. of Fact XL; R. 54]. He did not aid in its design or construction. Dr. Garbell received no remuneration for his invention from the defendant corporation [R. 282, 362; Find. of Fact XLI; R. 54], or even an acknowledgment that it was his invention or that they were using it [R. 234-238].

Dr. Garbell did incorporate his invention in suggestions that he made to the defendant [Find. of Fact XXXVII. R. 53], but at no time was there any time or expense of the defendant expended in development, adapta-

tion or modification of his invention [R. 259, 280, 461-462; Find. of Fact XXXVIII, XXXIX; R. 53-54].

All of these facts supported the Trial Court's opinion that there was no express or implied license either by way of the Invention Agreement [Exhibit 16] or because of the alleged development of the invention through the alleged use of the defendant corporation's time and expense, because the invention was made prior to the employment of Dr. Garbell by defendant and none of the corporation's time and expense was used in developing the invention [Find. of Fact XXXIII, XXXVIII, XXXIX; R. 53-54].

#### Defendants' Motion for a New Trial.

Defendants made a motion for a new trial which was denied by the District Court, and they have appealed from this denial of a new trial. The grounds for this new trial were:

1. Surprise at the trial which ordinary prudence could not have guarded against;
2. Newly discovered evidence;
3. Insufficiency of the evidence to establish infringement. [R. 65.]

The alleged surprise was "Defendants were wholly surprised by Garbell's unexpected testimony" (Apps. Op. Br. p. 59), and, secondly, that they knew nothing of Harry Bradford Chin until the trial and, therefore, they should be allowed to call him to testify, and, third, that

the District Court misinterpreted exhibits and testimony and, therefore, they should be allowed to call further witnesses to explain the testimony and exhibits. These new witnesses being known at the trial and some being employees of Appellant, Consolidated Vultee Aircraft Corporation, and not produced at the trial, the Court properly overruled the motion.

It is not newly discovered evidence when the name of a possible witness has been named in the Court room and a party fails to ask leave of the Court to take a deposition or to call that witness. All of the facts to be testified to by these new witnesses should have been foreseen and prepared.

The last ground for a motion for a new trial was that the Court had improperly applied the law in its Findings of Fact when it stated that there was no evidence adduced at the trial to negate a finding that the defendants infringed the patent in suit. As heretofore set forth, Dr. Garbell completely described the geometrical configuration of the accused 240 aircraft and showed that this geometry was the same as that patented. He further testified that from a study of the flight tests and C. A. A. reports [Ex. 35], furnished Appellees by Appellants, that the stall of the Convair 240 was the same as the Garbell Stall. The District Court properly held that the burden of proof shifted from the plaintiffs, as they had established a *prima facie* case of infringement, to the defendants to negate the proof of Dr. Garbell, and they made no attempt to do so.

## SUMMARY OF ARGUMENT.

1. THE PATENT IN SUIT TEACHES AN INVENTION COMPRISING A NEW COMBINATION OF ELEMENTS WHICH PRODUCES A NEW AND HIGHLY USEFUL RESULT NOT KNOWN TO THE PRIOR ART.

a. The Martin B-26 does not anticipate the patent in suit nor achieve the same result as the combination of the patent in suit.

b. The Martin P. B. M., the articles [Exhibits AAA and SSS], and the Vultee Vengeance do not anticipate the patent in suit nor achieve the same result as the combination of the patent in suit.

c. The Royal Aeronautical Society and Zien articles [Exhibits WW and XX] do not anticipate the patent in suit nor achieve the same result as the combination of the patent in suit.

d. The N. A. C. A. reports and notes [Exhibits XXX, UU and R. 868], and the article [Exhibit CCC], describe the conventional two-section wing prior to the Garbell invention and do not anticipate or describe the result of the Garbell invention.

e. There was no proof of the construction of any of the Curtiss-Wright models other than the one described in Exhibit VV, and none of these aircraft includes a Garbell Wing or achieves the result of the Garbell invention.

2. THE PINGUINO DOES NOT DESCRIBE THE COMBINATION OF THE PATENT IN SUIT.

3. THE CLAIMS IN SUIT PARTICULARLY POINT OUT AND DISTINCTLY CLAIM THE PART, IMPROVEMENT OR COMBINATION COMPRISING THE GARBELL INVENTION.



4. IT WAS CONCLUSIVELY SHOWN BY THE TESTIMONY OF DR. GARBELL AND K. WARD THAT THE CONVAIR 240 INFRINGED THE PATENT IN SUIT AND THAT IT HAD THE SAME STRUCTURE AS THE PATENT IN SUIT AND ACHIEVED THE SAME RESULT AS THE PATENT IN SUIT.

5. THE APPELLANTS DO NOT HAVE ANY LICENSE, EITHER EXPRESS OR IMPLIED, UNDER THE PATENT IN SUIT.

a. Dr. Garbell made the invention described in the patent in suit long prior to his employment by the defendant, Consolidated Vultee Aircraft Corporation.

b. The Invention Agreement [Exhibit 16] does not give an express license to the Appellants as the invention was made prior to the employment of Dr. Garbell by Consolidated and this was recognized at all times by the conduct of the Appellant.

c. There is no implied license or shop right under the patent in suit as the Appellants never expended time or money in perfecting, testing, developing, adapting or modifying the invention of the patent in suit, and never expended time or money in constructing aircraft or operating models with the knowledge and consent of Dr. Garbell, or during the employment of Dr. Garbell.

6. THE TRIAL COURT PROPERLY DENIED DEFENDANTS' MOTION FOR A NEW TRIAL.

7. APPELLANTS HAVE INSERTED EVIDENCE IN THEIR OPENING BRIEF WHICH WAS NOT BEFORE THE TRIAL COURT.

## ARGUMENT.

The Garbell invention comprises the creation of a new stalling characteristic, namely, that the stall should initiate inboard of the lateral control surfaces and should spread inwardly toward the root of the wing, thereby producing an adequate tail shake and causing the aircraft to nose down without any appreciable spread of the turbulence over the aileron and without an initial deep chordwise (fore-and-aft) spread [Garbell Patent p. 3, colm. 5, lines 7-12, and 37-65; R. 182-185, 197-199; Find. of Fact [XI, XII, XIV, XV; R. 47-48]. The testimony of Dr. Garbell [R. 182-185, 197-199] is unchallenged although many alleged experts testified for Appellants. To accomplish this novel stall Dr. Garbell provides a specific arrangement of camber and thickness ratio. The smallest camber should be at the root of the wing, the greatest camber at the tip and that there must be a third or interjacent section between the root and tip which has a larger camber than the root and smaller camber than the tip, but this interjacent section must have greater camber than would be obtainable by straight-line fairing. The thickness ratios of the wing sections are opposite in variation to the camber variation [Garbell Patent p. 2, colm. 4, lines 31-67, claims 1, 2, 3, 5, 6, 12; R. 192-199; Find. of Fact VIII, IX, X; R. 45-46]. Again this testimony of Dr. Garbell [R. 192-199] is unchallenged.

## Prior Art.

### Martin B-26.

None of the prior art referred to in Appellants' Brief discloses the Garbell Stall or the Garbell geometrical configuration of a wing. One of these prior art wings has no camber (0%) in an entire wing panel extending from the root (0%) to an interjacent section (0%). A contiguous interjacent section has camber (1.05%) and the tip section has more camber (2.25%) than the cambered interjacent section (1.05%). Obviously this wing did not have the smallest camber at the root as the interjacent section has the same camber [R. 845]. This was the Martin B-26.

The B-26 admittedly had a serious tip stall, even with spoilers added [R. 518-519] and this was called by its own designer an unsatisfactory stalling aircraft [R. 560].

### Martin P.B.M., Exhibits AAA and SSS and Vultee Vengeance.

Another aircraft upon which the Appellants have relied was the Martin P. B. M. The P. B. M. had a constant camber from the root (2%) to the gull (2%), which is the interjacent section, and then the camber increased from that interjacent section (2%) to the tip (3.84%) [R. 525-526, 859]. In other words, all sections between the root and interjacent section had the same camber (2%) [R. 525]. The interjacent section did not have greater camber than the root; hence, the smallest camber was not at the root [R. 526]. This aircraft ad-

mittedly as so built had a typical tip stall and the use of spoilers was required to make it usable [R. 574, 576, 589-590].

Another aircraft set up as an anticipation was that described in Exhibits AAA and SSS and known as the "Wippsterz." In this aircraft there is a constant camber from the root (2%) to the mid-semispan (2%) and *then* the camber increases to the tip (4%) [R. 438]. This is identically the same camber arrangement as used in the P. B. M. except as to quantities. This aircraft too had a dangerous stall [R. 438-439].

Another prior art aircraft set up in Appellants' Brief was the Vultee Vengeance described in Exhibits K and LLL. This aircraft was another example of the school of thought of which the P. B. M. and Wippsterz are two. This aircraft likewise had a constant camber starting at the root (1.4%) and running to an interjacent section (1.4%), and then an increase in camber to the tip (2%) [R. 335]. This is identically the same camber arrangement used in the P. B. M. and Wippsterz except as to quantities.

None of the afore described aircraft has the *smallest* camber at the root. The interjacent section has less camber than straight-line fairing. None have the Garbell stall. All have unsatisfactory stall characteristics.

#### Royal Aeronautical Society and Zien Article.

In the literature set up as prior art by Appellants are advocates of a method of overcoming the tip stall, namely, Royal Aeronautical Society [Def't. Exhibit WW, R. 903-910] and the article by Zien [Exhibit XX, R. 911-937]. Both of these articles teach that to prevent a tip stall the camber should be the least at the root but a greater

camber is used at an interjacent section and the same camber as at the interjacent section is used at the tip. This does not give a smaller camber at the interjacent section than at the tip, but identically the same camber. Therefore the tip does not, as in the patent in suit, have the greatest camber [R. 400-401, 433-435, 469-470, 909]. The record is singularly void in showing the use of this type of structure described in Exhibits WW and XX in any aircraft. The reason is readily understood when it is realized that this type of structure would give the deep root stall described by Dr. Garbell which produces such a violent tail shake and premature loss of lift that serious structural stresses would be set up which at times would actually tear the tail from the aircraft [R. 178-182].

#### **N. A. C. A. Two-section Wing Reports.**

Some of the earliest attempts to prevent tip stalling are disclosed in N. A. C. A. Reports [R. 627, Exhibit UU; R. 703, Exhibit XXX] and N. A. C. A. Note [R. 868]. In these exhibits all that is disclosed is a two-section wing. A two-section wing is one with straight-line fairing from root to tip [R. 427-430, 868, Exhibit XXX, pp. 517-518]. There is no description of the three or multi-control section wing in any of these exhibits. None of the wings described in these exhibits have the Garbell Stall. In fact, all that is described is attempts to move the tip stall from the tip to some other very narrow location on the wing.

To the N. A. C. A. notes and reports just referred to can be added Exhibit CCC [R. 950]. All that this exhibit describes is the problem of tip stalling, not its cure. It says that if some unspecified arrangement of camber and thickness is used tip stalling may be prevented, but it does not say what camber arrangement is to be used or what

a desirable stall characteristic is, nor does it relate one with the other [R. 439-440, 950]. This Exhibit CCC, when taken with the other exhibits, shows a true picture of the history and status of the art in wing design prior to the Garbell invention. It shows that many persons recognize the dangers of tip stall, root stall, etc., and that all of them were working on the problem. But none of this prior art discloses the actual Garbell arrangement of camber and thickness ratio, or even suggests the Garbell Stall. It is significant that the accused aircraft, the Convair 240, does not have any of these prior geometrical configurations or stall remedies (spoilers) and does not have any of these stall characteristics, but has the identical geometrical configuration and stall characteristics described and claimed in the Garbell patent [R. 220-225, 227-228, 442, 653].

#### **Curtiss-Wright Models 19L, 21B and 23.**

In an attempt to prove prior use, the Appellants introduced evidence allegedly relating to three aircraft made by the Curtiss-Wright Corporation. It is the contention of Appellants that these aircraft each had a wing configuration possessing a camber ratio similar to that set forth in the Garbell patent.

The sole witness testifying on this subject for Appellants was Oldendorph, a young man of thirty-three, who stated he was employed by defendant, Consolidated Vultee Aircraft Corporation, as an engineer, without further explanation or elaboration [R. 377]. Oldendorph's testimony discloses that from June to September, 1936, he was employed by Curtiss-Wright [R. 378]. In what capacity is not stated, but he would then have been eighteen or nineteen years old. According to his statement, Oldendorph

was again employed by Curtiss-Wright from June, 1937, to September, 1945 [R. 378], and in 1940 worked on the design of the center section—not the end or tip section—on a wing for the Model 21B aircraft [R. 396]. It is to be noted that Oldendorph did not testify that he had anything to do with either the Model 23 or the Model 19L in any capacity whatsoever. Hence we may properly conclude, as the evidence discloses, that Oldendorph was referring to what he had heard or read when he attempted to describe the wing configuration of the Model 23 or 19L.

According to Oldendorph, the Model 21B used exactly the same wing geometry as the Model 23 [R. 383]. *How does he know this?* When questioned on direct examination concerning the camber of the wing of the Model 23 in an attempt to show that the tip section thereof had the greatest camber, Oldendorph stated:

“The camber, if it had been a straight-line fairing from the root to the tip, it would have varied from 0 to, I believe it was, about  $3\frac{1}{2}$  or 3.4% at the tip.” [R. 380.]

This indefinite and obviously qualified remark is the basis for the positive position taken by Appellants in their Brief that the Curtiss-Wright Models 23 and 21B had a wing with a tip section having a camber of 3.4%.

After saying that the wing on the Model 21B had the same configuration as the Model 23 [R. 383] Oldendorph said that the Model 23 in turn, utilized airfoils developed by Curtiss-Wright on its earlier Model 19L [R. 381]. Again, how does he know this? To lend support to this claim Appellants placed in evidence Exhibit VV [R. 893-902], Exhibit MMM [R. 975-980; Exhibit NNN [R. 981], Exhibit OOO [R. 989-993], Exhibit PPP and Exhibit QQQ.

Exhibit VV, an article written in 1936, describes an aircraft, called Curtiss-Wright "Coupe," having a two-section wing [R. 431], definitely the same type of wing described in Exhibits UU and XXX. The article does not refer to any of the Curtiss-Wright Models 19L, 23 or 21B and does not contain any description of a Garbell Stall or of a three control-section wing. The article likewise does not describe the CW-19 tip airfoil nor its camber or thickness ratio.

The record is devoid of any proof that Exhibits MMM, OOO and PPP were ever published or that they described any aircraft as actually built. They are merely excerpts from private reports proposing possible experiments, long since abandoned, for the use of Curtiss-Wright Corporation and, hence, are not prior art.

Exhibit NNN has no evidentiary value in this case, being some drawing prepared and utilized for the purpose of illustrating a point in Oldendorph's testimony [R. 382].

In seeking to support his statement as to the camber ratios of the Model 23 wing, Oldendorph testified that they were given in Exhibit MMM [R. 378, 391]. Exhibit MMM consists of six photostatic pages arbitrarily selected from a Circular Proposal prepared for Army consideration and apparently consisting of a total of 109 pages [R. 975]. This was a private company proposal and there is no showing that the other 103 pages which Appellants did not introduce in evidence did not contain one or more different wing proposals, any of which may have been used in the Model 23.

Although Oldendorph testified that the airfoil sections were given on page 28A of said Exhibit MMM [R. 392], said Exhibit MMM does not contain page 28A, nor was



such a page introduced in evidence or displayed at the trial. We are forced to conclude that the only reason for failing to place page 28A in evidence is that it showed some other facts than given by the witnesses' memory. After being pressed on the matter and after examining Exhibit MMM, Oldendorph testified:

“It does not make any statement that I have been able to see here concerning the actual camber value of the CW-19 at the tip.” [R. 392.]

“It is not described in numerical value in this report (indicating).” [R. 393.]

The same situation is true of airfoil thickness, for Oldendorph testified that “I do not believe that any actual thickness is given for the CW-19 airfoil in this report.” [R. 393.]

Oldendorph then sought support for his statements in Exhibit VV, which was admittedly published three or four years before the Model 23 aircraft was built [R. 395] and read from page 272 thereof [R. 394]. The selection read by Oldendorph refers to a two section wing tapered from root to tip [R. 431], which is totally different from the Garbell patent. Furthermore, Oldendorph even disagreed with the statement he had just read into the record.

“It describes a wing with maximum camber at the tip, a constant camber from the center line to rib No. 4, and a straight-line variation of camber between rib No. 4 and the maximum camber point at the tip.” [R. 395.]

Assuming this statement to be correct, which it is not, it does not disclose a wing having the smallest camber at the root as is called for in the Garbell patent, but a wing similar to the Martin P.B.M.

According to Oldendorph, the modified wing on the Model 19L formed a basis for the wing configuration on the Model 23 and, hence, the Model 21B, and the modified wing of the Model 19L had an airfoil in the tip section of the wing with a mean-line camber of 3.4% [R. 386]. To support this statement, reliance is placed by Appellants on Exhibit OOO [R. 983], which is an intramural report of the Curtiss-Wright Corporation covering some flight test report of the Model 19L before modification and proposed structural changes to be made in the wing. Again, only a few arbitrarily selected pages of the entire report were introduced in evidence by Appellants. An examination of Exhibit OOO (which is dated prior to Oldendorph's employment by Curtiss-Wright) discloses that it does not contain any reference whatsoever to any table from which the airfoil data of the proposed modified wing can be obtained, nor was such a page of said report introduced in evidence or produced in Court.

A final attempt made by Appellants to bolster the claim advanced by them as to the camber of the modified tip section of the Model 19L wing is found in Exhibit ZZZ [R. 998]. *Allegedly* the lower drawing on said exhibit is a correct delineation of the ordinate resulting from the specification forming a part of Exhibit OOO. Exhibit ZZZ was prepared by Appellants and contains at the bottom thereof this statement, "Section derived from ordinate given on Curtiss-Wright Drawing No. 19-03-220." No such drawing as that referred to was introduced in evidence and it most certainly does not form a part of Exhibit OOO, nor does Exhibit OOO contain any specification of ordinates, airfoil sections or cambers.

With reference to Exhibit QQQQ, and in referring to the Model 21B, Oldendorph testified that the physical

aerodynamic layout of the wing for the Model 21B was not given therein and that the airfoil sections are not included [R. 396]. He likewise stated that said Exhibit QQQ did not contain any statement as to the (wing) sections of the Model 23.

It is apparent from the record that Oldendorph's testimony is unsupported and that said testimony concerning the Model 23 and the Model 19L is pure and simple hearsay.

Obviously the Trial Court gave little weight to Oldendorph's testimony, and quite correctly so. The Curtiss-Wright Corporation over a long period of time has been and still is in business. Proper and accredited testimony could have been introduced by Appellants through some official or officials of said corporation, either directly or by deposition. Instead of so doing they seek to rely upon the testimony of a witness who is certainly not disinterested inasmuch as he was at the time of the trial an employee of Appellant, Consolidated Vultee Aircraft Corporation, and who was testifying concerning matters taking place some fourteen years prior to the date of trial and when he was a very young man indeed.

It is our opinion that Oldendorph's testimony should be viewed with a great deal of suspicion and we further believe that this is a shining example of the type of testimony so aptly referred to in "The Barbed Wire Case," *The Washburn C. Moen Co. v. The Beat 'Em All Barbed Wire Co.* (1891), 143 U. S. 275 at 284, 36 L. Ed. 154 at 158.

See also:

*Smith v. Hall* (1937), 301 U. S. 216 at 222, 81 L. Ed. 1049 at 1055;

*Deering v. Winona Harvester Works* (1894), 155 U. S. 286 at 300, 39 L. Ed. 153 at 159;

*Parker v. Stebler* (9th Cir., 1910), 177 Fed. 210 at 212.

All of the prior art relied upon by Appellants clearly illustrates that tip stalling, especially in highly tapered wings, was a serious problem in the art of wing design and that many aerodynamicists and companies were working on the problem; that many schemes and systems in the arrangement of camber and thickness ratio were used and that the best that any of these experts were able to do was to patch up a wing with spoilers so that an otherwise dangerous aircraft could be used. All of the art set up by Appellants shows that the trade had long and persistently been seeking in vain for what Dr. Garbell finally accomplished by his particular arrangement of camber; *Forsyth v. Garlock*, 142 Fed. 461 at 463. The fact that others sought a solution to the problem of tip stall and failed whereas Dr. Garbell solved the problem clearly demonstrates the correctness of the District Court's findings that the invention was not anticipated and comprised a new and novel discovery of the highest sort and entitled to the protection of the Patent Laws.

“A prior patent which fails to solve the problem toward which the inventor's efforts are directed does not anticipate a subsequent patent which successfully solves the problem and effectually accomplishes the desired result.” (*Williams Iron Works v. Hughes Tool Co.*, 109 F. 2d 500, 510 (C. C. A. 10).)

### The Pinguino.

The Pinguino Sailplane which was designed, built and flown by Dr. Garbell in 1936 and 1937, is asserted by the Appellants to be an anticipation of the patent in suit. This is obviously not true. The Pinguino does not have the greatest camber at the tip but has it at some interjacent sections. It does not have the greatest thickness ratio at the root but at some interjacent sections [R. 285-286, 479-480]. The Pinguino does not in any way meet the claims of the patent in suit as the tip camber is not the greatest. None of the published descriptions of the Pinguino describe the Garbell Stall.

The Appellees do not and never have contended that the Pinguino is a reduction to practice of the Garbell patent in suit. In fact, the geometric configuration of the Pinguino is entirely different from that of the patent in suit and is not usable in a high speed aircraft [R. 241, 283-284].

There is no published description of the Garbell Stall in the literature prior to the Garbell patent. No person from a mere examination of the configuration of the Pinguino could understand and develop the geometric wing configuration required to build a wing for a high speed aircraft that would accomplish the Garbell Stall as he would not know from seeing and using the Pinguino the theory in the mind of the Pinguino's designer [R. 242]. The change from the wing geometry of the Pinguino to that of a high speed aircraft would and did require a high degree of inventive thought and effort [R. 242]. It is significant that although the Pinguino was built in 1936 and 1937 and its wing geometry described in the literature, no one other than Dr. Garbell was able to design the Garbell Stall or geometric configuration.

**The Claims in Suit “Particularly Point Out and Distinctly Claim the Part, Improvement or Combination.”**

Claims 1, 2, 3, 5, 6 and 12 of the Garbell patent “point out and distinctly claim” the invention (R. S. U. S. 4888, 35 U. S. C. A. 33) which the District Court held to be new and patentable [Find. of Fact, XVI, XVII, R. 48-49]. The invention comprises a novel *combination* of three or more fluid foil sections having a definite camber relationship. It is this novel *combination* of fluid foil sections which comprises the invention. Claim 1 points out this novel *combination* of three particular fluid foil sections and gives their locations. These fluid foil sections are described as positioned (1) at the root, (2) at the tip, (3) at an interjacent position between the root and tip. The fluid foil sections in this novel combination are then described as to camber. The section at the root has “*smallest* mean-line camber,” the section at the tip has “the *greatest* mean-line camber,” the interjacent section has camber which is “greater than the values of mean-line camber obtainable . . . by means of straight-line fairing.”

Appellants assert that the failure to “point out and distinctly claim” the invention is because the only novel element of this claim is “greater than the values of mean-line camber obtainable . . . by means of straight-line fairing.” This is not true. The invention comprises the entire new combination of three fluid foil sections constructed as set forth in Claim 1, not any one element

of that combination. The prior art, as before pointed out, does not show such a new combination. Appellees admit that the individual elements of this combination are old. There is, however, no prior art describing this *particular combination* of three particular fluid foil sections and their particular relationship to one another.

There is no denying that the patent in suit describes a new function; namely, the Garbell Stall, which has not been described or used by any one prior to Dr. Garbell. The combination of the patent in suit is a new combination of elements which produces a new result, even though all the individual elements thereof are old.

“It must be conceded that a new combination, if it produces new and useful results, is patentable, though all the constituents of the combination were well known and in common use before the combination was made. \* \* \*” *Hailes v. Van Wormer*, 20 Wall. (87 U. S.) 353, 368, 22 L. Ed. 241, 248.

See also:

*Leeds & C. Co. v. Victor Talking Machine Co.*,  
213 U. S. 302, 318, 53 L. Ed. 805, 813;

*Rees v. Gould*, 15 Wall. (82 U. S.) 187, 21 L.  
Ed. 39, 40-41;

*Grinnell Washing Mach. Co. v. Johnson Co.*, 247  
U. S. 426, 432, 62 L. Ed. 1196, 1199;

*National Hollow Brake Beam Co. v. Interchange-  
able B. B. Co.*, 106 Fed. 693, 706-707.

### Infringement of Patent in Suit.

Infringement of the patent in suit was proven by the testimony of Dr. Garbell at the trial. Testifying from Exhibit 20 he disclosed the camber relationship and the thickness ratios of the Convair 240 wing, showing that the root section had the smallest camber, the tip section the greatest camber, and the interjacent section had smaller camber than at the tip and more camber than at the root, and that the interjacent section had a greater camber than would be derived by straight-line fairing. The thickness ratio was such that the root had the greatest thickness ratio and the tip the smallest thickness ratio, and the interjacent section smaller thickness ratio than the root and greater than the tip, and the interjacent section had smaller thickness ratio than would be derived by straight-line fairing. The wing of the Convair 240 is a highly tapered wing [R. 220-227, Exhibit 21, R. 653, 1005].

These facts are substantially admitted as correct in the Opening Brief of Appellants [R. 54]. There was no cross-examination of Dr. Garbell or evidence to the contrary. It is clearly seen by a comparison of the camber and thickness ratio in the three control sections of the Convair 240 Model and those of the patent in suit that they are exactly those described and set forth as the invention of the patent in suit.

There is no challenging evidence in the record contrary to Dr. Garbell's testimony that the stall of the Convair 240 was the same as the Garbell Stall [R. 442].

Dr. Garbell arrived at his conclusions from the flight test reports and C. A. A. Comments contained in Exhibit 35. No cross-examination was made of Dr. Garbell



as to the conclusions reached by him or as to his qualifications as an expert. There is no denial in the record that Dr. Garbell is an expert aerodynamicist and stall specialist, and that he knows how to and has flown aircraft [R. 157-159]. In the face of the unchallenged testimony of Dr. Garbell concerning the actual construction of the wing and the stalling characteristics of the Convair 240 wing, defendants at the trial abandoned that defense. No evidence in any way rebutting any of Dr. Garbell's statements was offered and the only evidence offered was in corroboration.

A predecessor to the Convair 240 was the Convair 110, and it is admitted that the wing of the 110 was used on the 240 [R. 418]. Therefore the stall characteristics would not change substantially from one aircraft to the other. One of defendants' experts, K. Ward, admitted the infringement of the patent in suit. . . .

“As I recall, there was some question about using the three control sections on that airplane, because of the fact that it was necessary to put the interjacent control section inner to the root, when it would have been more desirable to put it at approximately 60 per cent semi-span. The benefits to be gained by using the three control sections are there, but they are small.” [R. 417.]

Appellants' employee, K. Ward, testified that he witnessed some initial root stall troubles during “the flight tests of which I (Ward) witnessed the tufts of the wings that were installed” [R. 419]. Ward did not testify on the extent of the tuft coverage on the wing that he observed; he confined his testimony to the very first Model 240 aircraft and emphasized that the root stall disturb-

ance was eliminated by necessary corrections of faults in the nacelles and control systems *only*, that is, not on the wing itself [R. 421], thereby fully corroborating Dr. Garbell's testimony [R. 272, 287-289, 442].

A further proof of the infringement of the patent in suit by the Convair 240 is the admission against interest made by defendant, Consolidated Vultee Aircraft Corporation [Exhibit 21], that "Claims 1, 2, 3, 5, 6 and 12 appear to be utilized by the Model 240 wing" [R. 653]. This was a statement given by counsel for the defendants to counsel for the plaintiffs [R. 227-228], and explains why no defense of noninfringement was offered by the defendants at the trial of the cause.

Appellants now state that there are no benefits in the Garbell invention. They admit they wished to use the benefits and did secure the benefits by their use of the Garbell invention [R. 417, 418] even though they admit that a three-section wing is more expensive and costly than the older, conventional two-section wing utilizing straight-line fairing [see Op. Br. of App. p. 31; R. 304]. Appellants pay tribute to the invention in their advertisements for the Convair 240 where they say "New high-efficiency wing" [Exhibit 23, R. 234, 238].

Even though the Convair 240 has a highly tapered wing [R. 225], the stalling characteristics of this aircraft were so satisfactory that C. A. A. approval was given for the commercial use of this aircraft in the United States without the use of any stall warning devices [R. 231-232, 444-445].

The District Court found as a matter of fact that the Convair 240 infringed the patent in suit [Find. of Fact XXV, XXVI, R. 51]. These Findings are based on the evidence of Dr. Garbell. There was no contrary evidence offered and they must be accepted as ruling in this case.

Appellants now assert noninfringement because the interjacent section of the Convair 240 is at the 30.7% point on the wing while they assert that the patent states that the interjacent section should be at the 55% to 60% point. Appellants ignore the teaching of the patent that because “practical design considerations” and “power plant nacelles” modify the lift in sections of the wing, the optimum position of the interjacent section (55% to 60% point) cannot be used and the interjacent section may be moved inwardly even inside the power nacelles [Garbell patent, p. 4, colm. 7, lines 29-38; p. 5, colm. 10, lines 26-37]. Appellants have used the invention in one of its less efficient forms but they obtain the mode of operation, benefits and results of the patent in suit [R. 417-418].

In *Stearns-Roger Mfg. Co. v. Ruth* (10 Cir.), 62 F. 2d 442, the Court said at 449:

“One may not avoid infringement by making a device which differs in form or is more or less efficient than the patented device, when he appropriates the principle and mode of operation of the patented device and obtains its results by the same or equivalent means.”

In *Williams Iron Works Co. v. Hughes Tool Co.* (10 Cir.), 109 F. 2d 501, 502, the Court said:

“Impairment of function and lessening of result, in degree only, does not avoid infringement.”

## Appellants Have No License, Either Express or Implied.

The Invention of Dr. Garbell Was Made Prior to Dr. Garbell's Employment by Defendant, Consolidated Vultee Aircraft Corporation.

That the invention of Dr. Garbell was made prior to any employment by defendant, Consolidated Vultee Aircraft Corporation, was found to be a matter of fact by the District Court [Find. of Fact XXXV, XXXVI, XLV, R. 53, 55].

The evidence fully supports these findings and is not in dispute. Dr. Garbell's testimony of how and when he made the invention was not refuted in any way and was corroborated in many details. Dr. Garbell conceived the idea of the Garbell Stall while working on gliders in Italy in 1936-37 and developed a wing which was incorporated in a sailplane known as the Pinguino, which accomplished this stall. However, the wing of the Pinguino was not usable in a high powered aircraft. By a "high powered" aircraft we mean a plane that would be usable for commercial purposes, such as the Convair 240 in distinction from what might be called a powered glider [R. 239-242, 284].

It was the undisputed testimony of Dr. Garbell that it did require invention over and beyond what was done in the Pinguino to produce a wing for high powered aircraft that would produce the Garbell Stall [R. 242]. During Dr. Garbell's trip to the United States in 1939 he had several days at sea and during that time he worked out and invented the particular combination described as the invention of the patent in suit, and at that time he made full drawings and sketches of the device [R. 165,

172-190, 199]. This completed the invention of the patent in suit. His facts and figures never had to be altered to manufacture an aircraft incorporating his invention [R. 280-281, 461-462]. The whole inventive concept was complete at that time.

Appellants assert that an invention cannot be complete until it has been reduced to practice. This is not the law except in one particular field and that field is where there is a dispute between parties as to who first made the invention. In such a case a special rule of law has been developed by the Patent Office and the Federal Courts that to prove invention *where there is a dispute as to who was the first inventor* the one who made the first reduction to practice would be deemed the inventor in law. In this case there is no dispute as to who the inventor is. Appellants have not denied that Dr. Garbell was the inventor and the only question before this Court is the date of that invention. It would be a strange rule of law that would say that a man had not made the invention prior to his disclosing it to another party merely because he had not made a working machine or a patent application.

It cannot be disputed and is not disputed that almost immediately upon his employment by the Appellant, Consolidated Vultee Aircraft Corporation, Dr. Garbell offered Consolidated Vultee Aircraft Corporation all facts and figures necessary to practice the invention [R. 311-312, 446]. Appellants now say that his invention was not made until the first aircraft was built. That is their meaning when they assert that no invention is complete until there is a reduction to practice.

Such a rule of law would completely deprive most inventors of their inventions because very few have the means or facilities to carry out an actual reduction to

practice. No single inventor has finances for constructing a high powered aircraft. Appellees agree with the law set forth by Appellants that where the dispute is between two or more people, each claiming to have made the invention, that the only fair way to determine the facts is by who first made a reduction to practice. But such is not the case here; admittedly one party made the invention and disclosed the invention to the other, and now the party to whom the invention was disclosed claims that the invention could not have been made until the manufacturer (himself) produced an actual finished machine. If the Court could make such a rule of law, all inventors would be subject to the claim of license as soon as the inventor approached a manufacturer and disclosed the invention.

A further proof that Dr. Garbell had made the invention prior to his employment by Appellant, Consolidated Vultee Aircraft Corporation, is the fact that in 1939 he completely disclosed his invention and made it known to Dr. Platt and to Harry Bradford Chin; that he made sketches and drawings on paper and on a blackboard and that both of these parties at that time fully understood his invention [R. 199-207]. The testimony of Dr. Garbell as to the disclosures to Dr. Platt and Harry Bradford Chin is not contested in the record. Of course Dr. Platt had died and was not available. Harry Bradford Chin not only was available but Appellants had sufficient time to interview and call Harry Bradford Chin as a witness or most certainly could have asked leave of Court to take his deposition. His address and telephone number, both at his home and at his place of business in San Francisco, were intentionally given in the direct testimony of Dr. Garbell [R. 231]. A recess of two and one-

half days was taken by the Court after the whereabouts of Mr. Chin were given. Five days elapsed after the testimony concerning the disclosure to Chin before the end of the trial, yet Appellants made no effort to ask leave of the Court to take the deposition of Mr. Chin or to have him called as a witness [R. 231].

It is very evident from the record that the District Court gave complete credence to the testimony of Dr. Garbell as to when he made the invention and the fact that he had disclosed it to Dr. Platt and Harry Bradford Chin, and the evidence is conclusive to support the Court's Findings of Fact to that effect [Find. of Fact XXXVI, R. 53].

The rule of law by which this Court is bound is that if a witness is believed and uncontradicted, his testimony is sufficient to prove that fact, Code of Civil Procedure, Section 1844.

“It is a general rule that ‘the uncontradicted testimony of a witness to a particular fact may not be disregarded, but should be accepted as proof of that fact.’” (*Joseph v. Drew*, 36 Cal. 2d 575, 579.)

“The direct, uncontradicted and unimpeached testimony of a witness is sufficient to support a finding.” (*Giese v. Los Angeles*, 77 Cal. App. 2d 431.)

The District Court is bound by the rules of evidence of the State of California, 28 U. S. C. A., Sections 1652, 43(a).

Appellants have cited the case of *Conway v. White*, 9 F. 2d 863, in support of their proposition that the invention was not made until it was reduced to practice during Dr. Garbell's employment by Consolidated Vultee Aircraft Corporation. They have set forth that in the

facts of the *Conway* case the defendant claimed to have made the invention *before* his employment and that the Court held his invention was made during the employment. Appellants have merely read the pleadings in this case and not the facts. In *Conway v. White (supra)* the defendant therein made a machine during his employment which he alleged did not contain the full embodiment of his invention and that he completed the invention *after* he left the employment of the company. The Court held that although the machine constructed *during* his employment did not embody the best example of his invention, that it did embody the invention and therefore fell under the License Agreement and became the property of the company even though the more successful embodiment had been made *after* he left the employment of the company. There were no facts set forth in the *Conway* case showing that the defendant had made the invention *prior* to his employment. The *Conway* case is not authority in this present action as the facts are that Dr. Garbell made his invention before his employment by the Appellant, *i. e.*, directly the opposite set of facts to those developed in *Conway v. White*.

The Court found, as a matter of fact, and properly so, that Dr. Garbell made his invention prior to his employment by Consolidated, and therefore, Appellants had no license, either express or implied [Find. of Fact XXXIV, R. 53]. The Court held as a Conclusion of Law that the plaintiffs herein are the owners of all right, title and interest in and to the Letters Patent in suit and that plaintiffs are entitled to a judgment for infringement as heretofore set forth [Concl. of Law, I, IV, V, VI, R. 56-57].



**No License to the Patent in Suit Was Granted by Exhibit 16.**

Appellants contend that the Invention Agreement [Ex. 16, R. 633], gave the Appellants a license under the patent in suit on the grounds that the invention was made during the employment of Dr. Garbell by Appellant.

The District Court found that there were no facts upon which to base such a license [Find. of Fact XXXIV, R. 53].

Exhibit 16 calls for certain payments to be made to Dr. Garbell for inventions coming within the metes and bounds of the Invention Agreement [Exhibit 16]. It is undisputed that no sums were ever paid Dr. Garbell for the patent in suit in accordance with such an agreement [Find. of Fact XLI, R. 54, 281-282]. It is very clear that the Appellant, Consolidated Vultee Aircraft Corporation, never considered the invention of the patent in suit as falling within Exhibit 16 as they never laid any claim to the invention [R. 461], never asked for and never secured an assignment of the invention, never asked Dr. Garbell to execute any papers in regard to this invention. They never offered, tendered or paid him any of the sums due under the Invention Agreement for the invention of the patent in suit and at all times they discouraged the use of the invention [R. 234-237, 261, 278-279, 313, 314, 360-362, 461]; in fact, it was customary to speak of the invention as the Garbell "cock-eyed" idea [R. 236, 301-302]. Consolidated Vultee Aircraft Corporation had a policy of calling inventions not falling under similar Invention Agreements by their inventor's names and they referred to the invention in suit as the "Garbell Wing" [R. 460]. At all times they rejected the invention unconditionally and unequivocally; they

would have nothing to do with it. We have a clear case here of a rejection of the invention as was had in *Pointer v. Six Wheel Corporation*, 177 F. 2d 153.

The pattern of the relationship between Dr. Garbell and Consolidated Vultee Aircraft Corporation is shown by the entire testimony of Dr. Garbell and the witnesses called by Appellants. Dr. Garbell was rebuffed at all times in his attempt to interest Consolidated in his invention which he had conceived and perfected before his employment. Consolidated never asserted any rights to the invention either under the Invention Agreement [Ex. 16] or upon any other theory and never took any steps to acquire any rights under a separate contractual arrangement; in fact, they rejected the offers of Dr. Garbell at all times and cast aspersions upon his invention and then, after their judgment had been proved faulty (the invention had merit), they endeavored to assert rights thereto. Any ethical norm which should dominate in the relationship of employer and employee should command a rejection of this belated claim by the employer [R. 43].

The facts are that Dr. Garbell almost immediately upon becoming an employee of Consolidated Vultee Aircraft Corporation attempted to interest Consolidated Vultee Aircraft Corporation in his invention and it was completely rejected. It is amazing to see a company claim that the invention was made during his employment and therefore falls under the Invention Agreement [Ex. 16] when Dr. Garbell had been working on this problem for years and was able to submit the full invention to his employer at the very outset of his employment [R. 311-312, 446-447]. No request for a disclosure of prior inventions was ever made by Consolidated [R. 213-214].

Dr. Garbell did not wait until a long period of his employment had passed before he first sought to interest Consolidated Vultee Aircraft Corporation, but did so at the outset. How could he make the involved invention of the patent in suit *simultaneously* with his employment? There is no proof in the record that Dr. Garbell was working on stall problems for Consolidated Vultee Aircraft Corporation; in fact, the actual problems and engineering work done by Dr. Garbell during his employment by Consolidated Vultee Aircraft Corporation was work on entirely disassociated subjects, namely, gun firing control, mechanical design of tail surface controls, and nacelle designs. None of this work in any way related to stall problems [R. 216, 294, 445-446].

Appellants contend that Exhibit D [R. 775] was a disclosure of the Garbell invention to the company in line with and under the terms of the Invention Agreement [Exhibit 16]. This argument of Appellants is completely refuted by the testimony of their witness, Mr. Bayless, who stated that this paper was prepared at his request for publication in the Institute of Aeronautical Science technical papers and was not written and submitted to the company for the purposes of being a disclosure under the terms of the Invention Agreement [R. 301]. After receiving Exhibit D, Consolidated's Patent Department asked for additional information [Exhibit F, R. 790], but when it was not sent [R. 368], dropped the subject matter.

When Dr. Garbell was asked to prepare for publication a paper on the Garbell invention, he obviously realized that such a publication, in all probability, could be considered a publication within the meaning of the Patent

Laws. With the sole purpose in mind of protecting his patent rights, he transmitted a copy of the paper as prepared to the company with language which, to his mind, would act as a red flag to Consolidated and direct their attention to the fact that he had exclusive property rights in the invention described in the paper.

That Consolidated considered this letter of transmittal in the light in which it was sent, to our mind, is amply demonstrated by the fact that on August 9, 1946, Consolidated wrote a letter to Dr. Garbell, which states in part: "We will accept a copy of the patent application to which you refer for the purpose of a disclosure, on the basis that in so doing, the disclosure is made to us without obligation \* \* \*." [R. 641.] If the patent had been disclosed under the Invention Agreement theory in 1944, why the request for a disclosure in 1946, which request is obviously framed with the Patent Laws in mind?

The Court will bear in mind that at no time did Consolidated do anything or take any steps, or make any claim of title or license in connection with the Garbell invention following the receipt by it of the letter [Exhibit E, R. 789].

The complete disinterest of Consolidated in the Garbell invention is disclosed by Exhibit F in which they ask for more information concerning Exhibit D, but when no further information was given them by Dr. Garbell, there was no follow-up and nothing further was done, even though Dr. Garbell still remained in the employ of the company until October, 1945.

All of this evidence, the continued rejection, the scoffing at the idea, the failure to take any positive action to

secure title or a license, or an interest, the failure to pay under the Agreement [Exhibit 16], along with the acknowledged use of the term "Garbell Wing," all spell out a pattern showing that the officers and employees of Consolidated Vultee Aircraft Corporation never considered that the Garbell invention was included under the terms of the Invention Agreement [Exhibit 16], and that there was a separate invention made by Dr. Garbell prior to his employment. These facts conclusively support the Findings of Fact of the District Court that Appellants had no express license under Exhibit 16.

#### **Appellants Have No Implied License.**

Appellants allege an implied license under the patent in suit on the alleged basis that during Dr. Garbell's employment by Consolidated Vultee Aircraft Corporation the corporation expended time, effort and money in developing and proving the invention of Dr. Garbell. The District Court held as a matter of fact that there was no basis for such a claim and that no monies, time or effort of the corporation had been expended in perfecting, testing, developing, adapting or modifying the invention of the patent in suit [Find. of Fact XXXVIII, XXXIX, XLV, R. 53-55].

The facts relating to this issue are that Dr. Garbell included his invention in several suggestions [Exhibit B]. These included a prospective report for a 2-engine tailless model, suggestions for the XB 46 and for the Convair 110 along with several other aircraft. None of these aircraft were designed or built during Dr. Garbell's employment and his suggestions were all rejected. In each of these suggestions there was described at least another

wing of conventional 2-sectional design and Dr. Garbell was told Consolidated preferred to use such 2-sectional wing [R. 249, 255-257, 279, 322, 455, 326, 418, 457-459, Exhibit 25].

It should be pointed out that these suggestions were merely offers or proposals to try to design and to build an aircraft in accordance with the structures described therein and that during his employment and until long after, none of these planes were *built* using any of the suggestions, and at all times up to the end of the employment of Dr. Garbell he was informed that they would not be used. There was a complete rejection of these suggestions. Certainly the mere proposal of the use of an invention to an employer followed by the rejection of the use of the invention is not such an expense of time and money as to justify an employer claiming an implied license or shopright. It is evident from the testimony of Dr. Garbell, Messrs. Bayless, Ward and Jason taken as a whole that, if the company had at any time expressed a desire to use the invention of Dr. Garbell, or even a desire to test or try out the invention, or to make a working model thereof, both the Appellant, Consolidated Vultee Aircraft Corporation, and Dr. Garbell would have realized that there would have to be an agreement as to the terms and considerations under which Consolidated could acquire rights in the invention [R. 447-451].

In connection with the claim of Appellants that monies were expended on the Garbell invention, it was testified that small scale models were made for testing in wind

tunnels. Right at the outset let us state that the invention was complete in and of itself. The few instances where a model using the Garbell invention was so tested merely proved the contentions of the inventor that certain definite stall characteristics would and did result. There was no experimentation [R. 461-462].

This practice of testing an invention was not unusual for it was one that was followed by Consolidated in all so-called outside inventions [R. 460-461]. The assertion that tests were made to determine whether wings embodying the invention in suit were practical in no way affects the Findings of Fact [Find. XXXVIII, XXXIX, [R. 53-54] that nothing was done to develop or adapt or modify the invention. No wind tunnel tests or any other tests made of the Garbell invention at or by Consolidated added anything to the conception of the practical carrying out of the invention. Stated another way, there was no change in the invention from before the tests to after the tests. The very first suggestion which was made for the use of the invention was complete and contained all of the elements; nothing was modified by any test [R. 461-462].

The only so-called models that were made embodying the Garbell invention were these: a small scale static (nonoperating) model of the tailless aircraft, which model was made and used primarily for the testing of the Sutton control surfaces [R. 323-324, 454-458, 685]; a static (nonoperating) model for the XB-46 which principally served as a platform for testing of the engine nacelles, flaps, controls, etc. [R. 458].

We would like to point out to the Court that the only operating model of the tailless aircraft ever constructed had a two-section wing thereon [R. 257, 322-323, 455]. Just before Dr. Garbell severed his employment with Consolidated a mock-up (full scale nonoperating model) was made of the XB-46 and this mock-up did not contain the three-section Garbell wing but the conventional two-section wing and Dr. Garbell never knew and was never informed that the XB-46 was to include his invention [R. 459].

At the time Dr. Garbell left the employment of Consolidated the design of the Convair 110 had been abandoned and to the best knowledge of Dr. Garbell at the time he left the employment of the company, the company had no intention of using his invention and had not used it in any way whatsoever theretofore [R. 458-459, 418].

To secure an implied license, the alleged licensee must have used the invention with the express permission and knowledge of the alleged licensor. In the case at bar there is unauthorized use of the patent in suit after Dr. Garbell left the employment of Consolidated. This use was unknown to Dr. Garbell.

The facts are that Dr. Garbell had been continuously informed that the company would not use his invention and had not used his invention prior to his leaving the company: Certainly no right to use the patented invention can be implied from these facts.



## The Court Properly Denied Defendants' Motion for a New Trial.

Defendants are not entitled to a new trial on the grounds of surprise at the trial which ordinary prudence could not have guarded against.

The alleged surprises at the trial were:

1. The testimony of Dr. Garbell as to conversations with Harry Bradford Chin;
2. The introduction in evidence of Exhibit 25.

All of these alleged surprises took place on the first two days of the trial, November 21 and November 22, 1950. There was no request at the time for a continuance to take the testimony of Harry Bradford Chin or the testimony of two former employees whom defendant now wishes to call, namely, Theodore P. Hall and Donald A. Hall. In fact, a recess was taken of one day after the first two days of trial and a two and one-half days' recess after the third day of trial so that the final argument of this case was made on November 27, 1950, six days after commencement of the trial and at least five days after the alleged surprises. At no time during the trial was there any suggestion or allegation of surprise by counsel of defendants. At no time was a continuance requested. There was no cross-examination of Dr. Garbell as to his conversation with Harry Bradford Chin, Theodore P. Hall or Donald A. Hall. There was no request made to the District Court to reopen the litigation for the taking of testimony of Harry Bradford Chin, Theodore P. Hall or Donald A. Hall between the time of the commencement of the trial and the time of the Memorandum Decision on December 7, 1950. No at-

tempt was made to reopen the testimony until ten days after entry of Judgment on January 15, 1951. Defendants showed no diligence in moving the District Court to permit the enlargement of the record by taking the testimony of these three witnesses.

To be grounds for a new trial a surprise occurring during trial must be one which ordinary prudence does not guard against. Certainly ordinary prudence would have required the defendants to have called Theodore P. Hall, Donald A. Hall and Harry B. Chin, rather than to allow the Court to spend over a month preparing a decision and then to wait a second month during which the Court and Plaintiffs prepared Findings of Fact, Conclusions of Law and a Judgment before attempting to reopen the case.

*Ruedy v. Town of White Salmon*, 35 Fed. Supp. 130;

*Dow v. Carnegie-Illinois Steel Corp.*, 70 Fed. Supp. 1016 at 1019.

Passing to the merits of the question of new testimony, and especially the affidavit of Harry Bradford Chin [R. 66], the Court should note the affidavit of Theodore Roche, Jr. [R. 1111].

A comparison of the affidavits of Harry Bradford Chin, Theodore Roche, Jr., and the testimony of Dr. Garbell shows that not only Chin does not deny the testimony of Dr. Garbell, but that he had made previous statements confirming the same [Affidavit of Theodore Roche, Jr., R. 1111].

The affidavits of Theodore P. Hall, Donald A. Hall, Harry C. Matteson and William W. Fox disclose that they are all employees or former employees who could have been called at the trial, their existence and whereabouts being known to Appellants, and certainly they could have been questioned at any time, but were not.

The grounds for a new trial on the assertion of newly discovered evidence is completely fallacious. As has been shown, there was no newly discovered evidence in the case of Harry Bradford Chin.

To be newly discovered evidence it must be evidence which, through ordinary diligence, the Appellants could not have found prior to the trial. Certainly the head of their Patent Department and the direct superior of Dr. Garbell, namely, Donald A. Hall and Theodore P. Hall, respectively, should have been expected to know facts that might have importance at the trial of this action, and Appellants' counsel are chargeable with negligence, to say the least, if they did not interview these parties prior to the trial. They now say they have just discovered the alleged evidence. In fact the affidavit of Theodore Roche, Jr., shows that Defendants actually had interviewed these men two years before the trial [R. 1113, 1114].

The alleged testimony of Harry C. Matteson and William W. Fox is that of persons who alleged that they flight tested the Convair 240. Certainly Appellants' counsel are chargeable with knowledge of what these wit-

nesses would say concerning the operation and characteristics of the accused 240 aircraft. Any testimony they had to give as to the performance or operation of this aircraft should have been fully known to counsel and certainly was known by Consolidated long prior to the trial. None of the evidence set forth in any of the affidavits of these employees, past and present, is newly discovered. The real facts of this case are that Appellants have new counsel who do not agree with the theory and practices of their predecessors at the trial of this case and now want to go back and try the case in their own manner. If such a practice were allowed, it would mean that a defeated party could always obtain a new trial by hiring new counsel and there would be no end to litigation.

The claim that the evidence was insufficient to justify the decision as to the infringement of the patent in suit has been fully covered heretofore in this Brief (p. 34), and all that remains is to state that there was no error of law in the District Court's holding that the burden of proof had shifted to defendants to negate the *prima facie* showing made by Dr. Garbell that the patent in suit was infringed. Especially is this true when the admissions against interest heretofore referred to are added to the testimony of Dr. Garbell. Of course the affidavits of Matteson and Fox do not go unchallenged, but are completely refuted by the affidavit of Dr. Garbell [R. 1131].

It should be noted by this Court in passing that Fox, who now wishes to testify in this case, actually filed af-

fidavits in the case months before the trial, so he certainly cannot be called a newly discovered witness [R. 493].

The Trial Court properly held that there was no surprise, no newly discovered evidence, and that the evidence as to infringement was completely sufficient, and therefore correctly denied the motion.

### **New Evidence Not Before the Trial Court Was Inserted in Opening Brief of Appellants.**

In the Opening Brief of Appellants they have introduced considerable evidence which is not in the record. This includes, first, the entire Appendix C, which was never introduced in evidence during this case; also, they included in their Brief eleven plates, none of which was introduced in evidence. None of this evidence was before the Trial Court or formed any part of the basis upon which the Trial Court rendered its decision.

It is believed that this Court should disregard this new evidence as there is no proof as to its correctness. Furthermore, it should be noted that in the Opening Brief the Appellants have used the affidavits accompanying their Motion for a New Trial as if they were evidence. Especially is this true on pages 19 and 29.

All this evidence which Appellants now attempt to insert into the suit was available to them many months before the trial of this action and it was not offered at the trial [R. 1111, 1131].

### Conclusion.

It is respectfully submitted that the Judgment of the District Court in finding the Garbell patent to be valid and infringed was in accord with the overwhelming evidence before that Court. In fact, there is no evidence to the contrary.

It is further submitted that the Appellants' claim of a license has no basis in fact or law and the District Court's Findings of Fact that there was no license of any type is supported by uncontroverted evidence.

It is further submitted that the motion for a new trial had no basis in law or fact and was properly denied.

Appellees therefore respectfully submit that the Judgment of the District Court should be affirmed.

Respectfully submitted,

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